AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of calculating ~~a~~ an average value of a modulus of elasticity of ~~an object~~ a dried wood-containing board, the method comprising:

measuring the density of the ~~object~~ board by detecting radiation absorption in the object;

measuring the velocity of sound wave propagating through the ~~object~~ board; and

calculating the average value of the modulus of elasticity of the board using the density and sound wave velocity measurements.

Claims 2-4. Cancelled

5. (Currently amended) The method of Claim 1, wherein the sound wave is an ultrasound wave induced into the ~~object~~ board.

6. (Currently amended) The method of Claim 1, wherein the sound wave is a stress wave induced into the ~~object~~ board.

7. (Currently amended) The method of Claim 1, wherein measuring the density of the ~~object~~ board includes

emitting radiation into the ~~object~~ board from a radiation source; and

detecting the amount of emitted radiation that travels through the ~~object~~ board.

8. (Currently amended) The method of Claim 7, wherein measuring the density further includes

generating signals indicative of the detected radiation;

processing the generated signals; and

calculating the density of the ~~object~~ board based on the generated signals.

9. (Currently amended) The method of Claim 1, wherein measuring the velocity of the sound wave through the ~~object~~ board includes

determining the time of flight of an induced sound wave between a known distance; and

calculating the velocity of the induced sound wave by dividing the determined time of flight value by the known distance value.

10. (Currently amended) The method of Claim 9, wherein determining the time of flight of the sound wave includes

producing an ultrasonic sound wave in the ~~object~~ board by a transmitting transducer, the ultrasound wave traversing through the ~~object~~ board along the ~~object~~ board longitudinal axis;

generating signals with a receiving transducer positioned a known distance from the transmitting transducer, the generated signals being generated by the receiving transducer based on the produced ultrasonic sound wave; and

processing the signals generated by the receiving transducer in the time domain, the processed signals resulting in a time value indicative of the time of flight of the ultrasonic sound wave between the transmitting and receiving transducers.

11. (Currently amended) The method of Claim 1, wherein measuring the velocity of the sound wave through the ~~object~~ board includes

producing a moving stress wave within the ~~object~~ board by impacting the ~~object~~ board along its longitudinal axis, causing the ~~object~~ board to freely vibrate at a harmonic resonance frequency;

sensing the stress wave as the stress wave propagates through the ~~object~~ board with a transducer, and generating signals associated with the stress wave;

processing the signals generated by the transducer, the resonant frequency of the ~~object~~ board obtained by processing the transducer signals; and

determining the stress wave velocity of the ~~object~~ board.

12. (Original) The method of Claim 11, wherein processing the signals generated by the transducer includes

converting the signals received from the transducer into a frequency spectrum; and

locating the resonant frequency by analyzing the frequency spectrum.

13. (Currently amended) ~~A~~ The method of Claim 11, wherein determining the stress wave velocity of the ~~object~~ board includes

obtaining the longitudinal dimension value of the ~~object~~ board;

obtaining the resonant frequency value of the induced stress wave; and

calculating the stress wave velocity through the ~~object~~ board based on the longitudinal dimension value and the resonant frequency value.

14. (Currently amended) A method for calculating the average bending stiffness in a dried wood product, comprising:

emitting radiation in the direction of the wood product transverse to the longitudinal axis thereof;

detecting radiation that passes through the wood product;

determining the density of the wood product based on the detected radiation;

inducing a sound wave into the wood product;

sensing the induced sound wave;

determining the velocity of the induced sound wave based on the sensed induced sound wave; and

calculating the average bending stiffness of the wood product based on the determined density and determined velocity.

15. (Original) The method of Claim 14, wherein the sound wave is induced by an impactor.

16. (Original) The method of Claim 14, wherein the sound wave is induced by an ultrasonic transducer.

17. (Currently amended) A system for non-destructively calculating average bending stiffness in a dried wood product, comprising:

a density measurement sub-system including a radiation source positioned transverse to the longitudinal axis of the wood product and a radiation detector positioned on the side of the wood product opposite the radiation source, the radiation detector generating signals indicative of detected radiation, wherein the generated signals are processed to calculate the density of the wood product; and

a velocity measurement sub-system including a sound wave device that induces a sound wave in the wood product and a receiving sensor that measures the sound wave in the wood product and generates signals indicative thereof, wherein the receiving sensor generated signals are processed to calculate the velocity of the induced sound wave;

wherein the average bending stiffness in the wood product is calculated based on the calculated sound wave velocity from the velocity measurement sub-system and the density measurement from the density measurement sub-system.

18. (Original) The system of Claim 17, wherein the velocity measurement and the density measurement sub-systems each includes a processing unit, the density measurement processing unit communicating with the radiation source and the radiation detector and executing a stored routine that calculates the density of the wood product based on the absorption signals generated by the radiation detector; and the velocity measurement processing unit receiving signals from the receiving sensor and executing a stored routine that calculates the velocity of the induced sound wave based on the signals received from the receiving sensor.

19. (Original) The system of Claim 18, wherein the velocity measurement processing unit converts the signals received from the receiving sensor into a frequency spectrum and locates the resonant frequency of the induced sound wave.

20. (Original) The system of Claim 18, wherein the velocity measurement processing unit measures the time of flight of the induced sound wave between the sound wave device and the receiving sensor.

21. (Currently amended) The system of Claim 18, further comprising a calculating unit that receives the velocity value calculated by the velocity measurement sub-system and the density value calculated by the density measurement sub-system, and calculates a resultant value that is indicative of the <u>average</u> bending stiffness of the wood product.

22. (Original) The system of Claim 17, wherein the sound wave device of the velocity sub-system includes an impactor that strikes the end of the wood product, causing the sound wave to propagate through the wood product.

23. (Original) The system of Claim 17, wherein the sound wave device of the velocity sub-system includes an ultrasonic transducer in contact with the wood product.